HUMAN/ENVIRONMENT INTERACTIONS: CLIMATE

BY: Margaret Harshfield, S. Ellen Jones Elementary School
New Albany IN, Summer 1989

Purpose

The purpose of this lesson is to allow the students to learn about the various global climates through a variety of learning style techniques and to apply cultural adaptations of the peoples in the various zones due to the climate.

Teaching Level

The lesson was originally designed for grades 3-6 BUT is appropriate for other middle and high school grade levels as a hands-on learning experience.

Geography Standards:

#1 - How to use maps and other geographic representations, tools and technologies to acquire, process and report
information from a spatial perspective.
#3 - How to analyze the spatial organization of people, places and environments on Earth's surface.
#4 - The physical and human characteristics of places.
#7 - The physical processes that shape the patterns of Earth's surface.
#12 - The processes, patterns, and functions of human settlement.
#15 - How physical systems affect human systems.

Objectives

Upon completion of this lesson/activity, students will be able to:

1. identify the four major climate types.
2. compare and contrast the basic needs of the people who live in these regions.
3. verbally express comprehension that "exceptions" occur within a region due to variations caused by
elevation and closeness to large bodies of water.
4. use information gathered from various sources (magazines, newspapers, atlases, encyclopedias) to develop
a model for the ten climate zones.

Materials Required

- Magazines, newspapers, and other items that may be cut up
- Atlases and encyclopedias
- Construction paper
- Scissors
- Glue
- String
- Overlapping overheads displaying the four major climate zones
- Student worksheets to compare climate type with food, shelter, clothing, and other aspects of life (attached)

Procedure

1. Introduce the topic by naming places that you would like to visit. Solicit places from the students.
2. Through guided practice map studies, identify, on a world outline map, the Equator, Tropic of Cancer, Tropic of Capricorn, Arctic Circle, and Antarctic Circle on an overhead transparency.
   a. With a red marker, draw a line over the Equator, thus, indicating the climate region of the Equator in red. Discuss a tropical climate with the students using the teacher information given.
   b. Overlay a transparency indicating the climate zones from the Equator to the Tropics of Cancer and Capricorn in orange, thus, indicating the climate zone as dry. Discuss a dry climate with the students.
   c. Overlay a third transparency which indicates the zones from the Tropics of Cancer and Capricorn to 600 North and South in green, thus, indicating the climate zones as mid-latitude. Discuss a mid-latitude climate with the students.
   d. Overlay a fourth (and last) transparency which indicates the zones from 600 North and South to the Poles in blue, thus, indicating the climate zones as polar. Discuss a polar climate with the students.
3. Use a population map and a physical map to compare population, land elevation, water, and other features of the various climate types. Pose various questions to the students about locations, climates, animal and plant life, and other topics.
4. Divide the students into groups. Each group will design a collage of the world's four major climate zones by observing various color photographs and their probable place of origin. The groups will paste the photographs on a large sheet of paper (11" x 17") with the polar photographs at the top and bottom of the sheet, the mid-latitude photographs next to the polar photographs, the dry photographs near the Equator, and the tropical photographs on the Equator. Notice that the photographs generally tend to be reddish along the tropical zone, orange/brown in the dry zones, green in the mid-latitude zones, and blue in the polar zones. When the projects are completed, have the groups explain their models of the climate zones to the rest of the class. Be sure that students do not "over generalize" about climate types. Display various world climate maps (in color in atlases) to the students that they gain a better sense of the diversity of and distribution of the many climate types.

5. Each student is to complete the student worksheet. Brainstorm with the class the following two questions:

a. What do we need to consider when thinking about climate zones?
b. What kinds of activities do people tend to be involved in within a particular climate zone?

Evaluation

Evaluation will be performed by observing the group work and the end-product and by reading the student worksheets.

Extensions/Adaptations

The students could write a more complete report on a given region of the world and its climate type(s) and could present their findings to the rest of the class.

Teacher Background Information

INFORMATION ABOUT CLIMATE ZONES - (approximate)

DRY CLIMATES

Desert - Located between 20 - 30 degrees latitude North and South; hot and dry with almost no rain; approximately 1000 average summer temperatures; temperature can drop below freezing on winter nights; examples are the Australian interior and the Gobi Desert

Steppe - Often occurs in low to mid-latitudes along the edges of deserts; somewhat wetter than desert climates; semi-arid; examples are the Sahel region of Africa and the fringes of the Great Plains as in North Dakota

TROPICAL CLIMATES

Tropical Wet and Dry - Located between 5 - 20 degrees latitude North and South; hot year-round with wet and dry seasons; transitional region; examples are the savannas of Kenya and the Ilanas of Venezuela

Tropical Wet - Located between 0 - 10 degrees North and South latitude; hot and rainy year-round; daily afternoon rains; examples are the Amazon River Basin and the Central African Republic

MID-LATITUDE CLIMATES

Mediterranean - Located between 30 - 40 degrees latitude North and South; found along the western coasts of continents; takes the name from the area bordering the Mediterranean Sea but are found

in such areas as California, Chile, and the tip of Africa; summers are typically hot and dry; winters are mild and cool with rain; rarely extreme temperatures; examples are Greece and western Australia

Marine West Coast - Located between 35 - 55 degrees latitude North and South; mild and wet especially in the winter; westerlies move moist air in from the oceans; rain occurs in steady drizzle rather than a heavy downpour; summer rains taper off to an inch or two; examples are Washington, British Columbia, Southern Alaska, most of western Europe, southern Chile, New Zealand, and England

Humid Continental - Located between 35 - 60 degrees latitude North; does not occur in the southern hemisphere; not located near oceans; seasonal changes are extreme - warm summers and cold, wet winters; highly variable weather within a season; located in areas where polar and tropical air masses collide; four distinct seasons; examples are central and eastern North America, northeastern Europe, and eastern Asia

Humid Subtropical - Located between 20 - 35 degrees latitude North and South along the east coast of continents; hot, humid summers; mild winters; popular areas for vacation and retirement; complex weather conditions; climate suitable for agriculture; examples are southeastern United States, east coast of Australia, Brazil, Argentina, Taiwan, and portions of Uraguay

<u>POLAR CLIMATES</u>

Ice Cap - Located at the North and South Polar Regions; coldest climates on the Earth; temperatures may remain below freezing and may plunge to 89-90 0F below zero; during the winter months, the sun never gets above the horizon; arid and no vegetation; examples are Antarctica and central Greenland

Tundra - Located on the fringe of the ice cap regions; brief warm period takes place during the summer months allowing for low-growing vegetation; the temperature may reach the mid 40's during the summer; the earth is frozen for most of the year, but some thawing occurs during the

short
summers due to the higher temperatures; examples are the north slope of Alaska and the northern
coast of Russia

Student Worksheet for Global Climate and Human/Environment Interaction Lesson

Name:_____

Food Shelter Clothing Other